



## Mini SY-04 Syringe Pump

### 立式注射泵

- RUNZE patented component deliver fluids from microliters to milliliters with extraordinary accuracy and precision
- Small footprint suits limited spaces
- Biocompatible wetted material apply for most chemical solvents
- Equipped with NMB step motor, KSS ball screw, OMRON optocouplers, high stability and maintenance-free
- High efficiency maintenance-free stepper motor drive system
- Flexible option: with or without RS232/RS485/CAN driver

ZSB-LS - 0.9 - 1 - 5 - 1 - Q

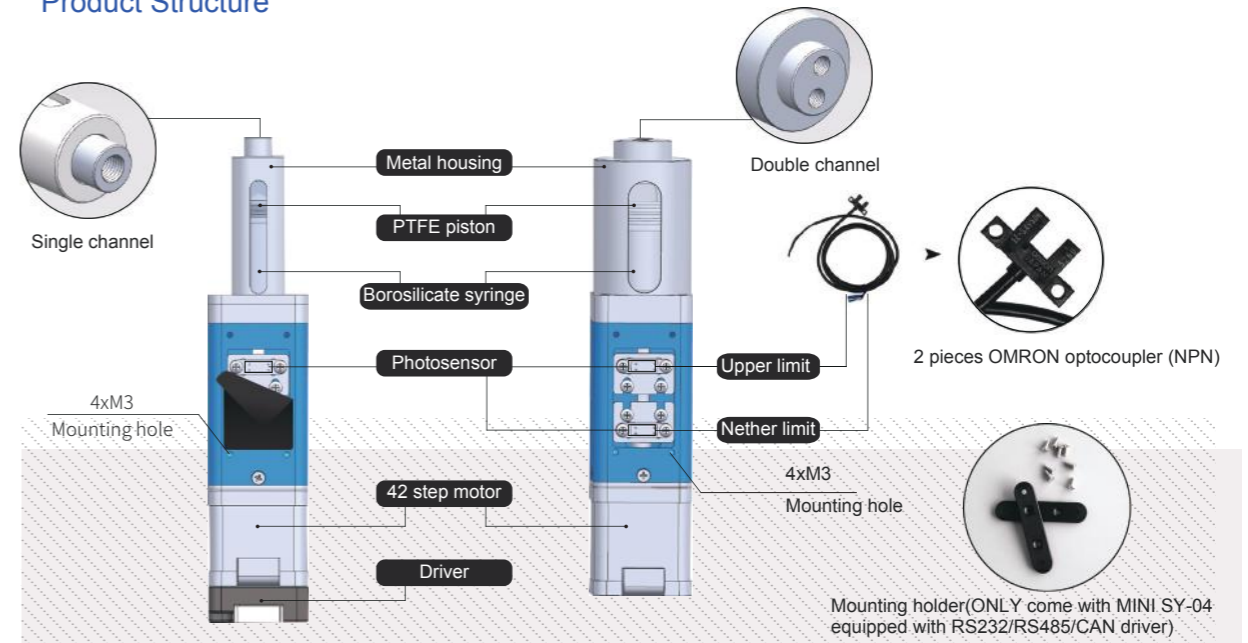
Model No.    0.9°Step motor    Lead 1mm    Volume    Channel    Driver

①	5	5ml	1	single channel	Q	with driver
	10	10ml	2	double channel	-	without driver
	20	20ml				

### Technical Parameters

Accuracy	≤1%@100% stroke		
Precision (Repeatability)	0.3%~0.7%@100% stroke		
Water pressure rating	0~1.2Mpa (water)		
Air pressure rating	Positive air pressure 0~1.0Mpa / Negative air pressure 0~0.05Mpa (test period)		
Service life	3 million times no leakage (media: water ; 1 rated stroke=one time)		
Initial position detection	Photosensor detect original piston position		
	5ml	10ml	20ml
Rated stroke (control steps)	30mm(12000 steps)	24.08mm(9632 steps)	24mm(9600 steps)
Maximum speed	300rpm	300rpm	250rpm
Linear speed	0.017~5mm/s	0.017~5mm/s	0.017~4.167mm/s
Running time (per rated stroke)	6~1416s	4.82~1416s	5.76~1412s
Resolution	0.0025mm/0.4154μl	0.0025mm/1.0382μl	0.0025mm/2.0833μl
Syringe ID	14.55mm	23.03mm	32.57mm
Actuator	Ball screw (Lead 1mm)		
Max. piston drive	≥100N		
Sub. piston drive	≥45N		
Wetted material	Borosilicate glass, PTFE piston/outlet		
Connection	1/4-28UNF		
Communication	RS232/RS485/CAN		
Baud rate	RS232/RS485: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps CAN: 100Kbps, 200Kbps, 500Kbps, 1Mbps		
Address & Parameter setting	Via communication		
Power supply	DC24V/1.5A		
Operating temperature	5°C~55°C		
Operating humidity	<80% relative humidity, non-condensing		
Dimension (L*W*H)	42*42*191mm (without driver)	42*42*206.2mm (with driver)	
Net weight	0.72kg		

### Product Structure



### Product Function

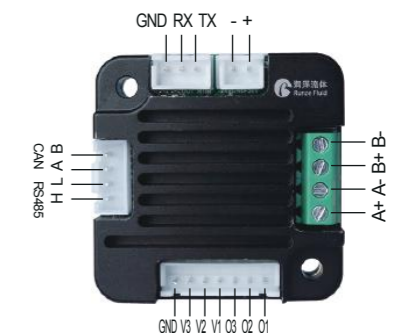
Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	1rpm - 300 rpm (air and liquid maybe different)
Subdivision setting	When speed at 1rpm, motor subdivision must be 256
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate etc.
Version query	Query firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status
Power memory	When motor suddenly stops, current position can be queried from the distance between current position with the origin
Collision protection	Upper and nether optocoupler to limit the piston position

### Driver Port

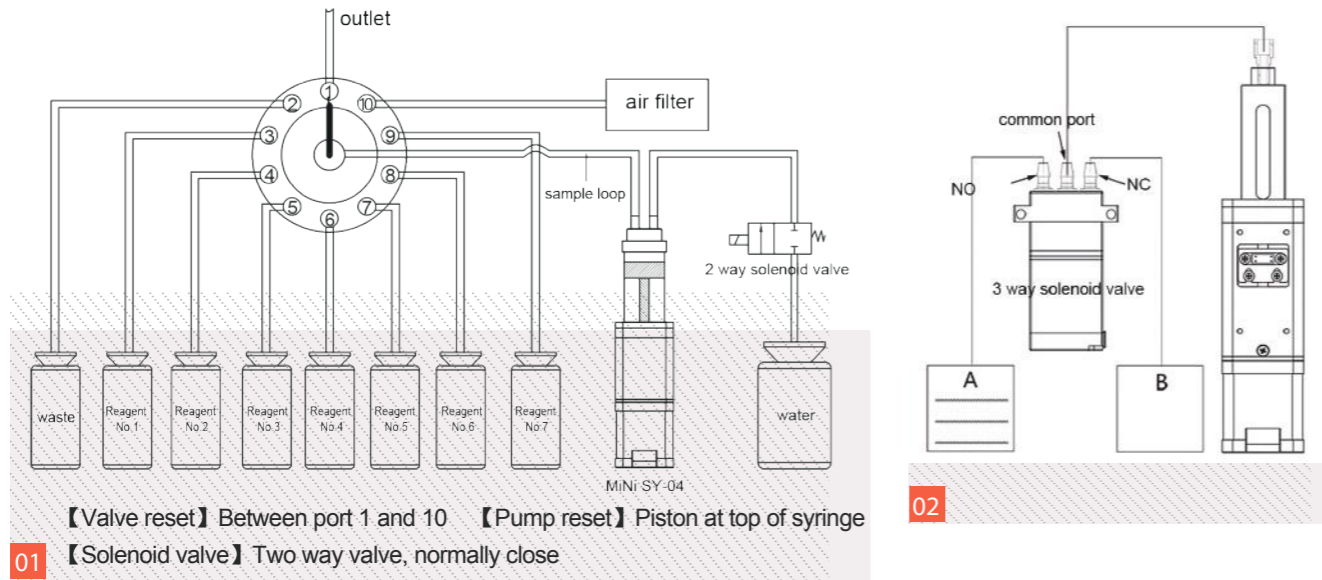
Port	Description	Port	Description
H	CANH	B+/B-	Phase B wiring
L	CANL	A+/A-	Phase A wiring
A	RS485 A	O1	Photosensor wiring port
B	RS485 B	O2	
GND	GND	O3	
RX	RS232 data output	V1	
TX	RS232 data input	V2	
-	DC24V negative	V3	
+	DC24V positive	GND	

### Motor Parameter

Max. power	9.2W
Step angle	0.9°
Phase	2
Phase voltage	4.6V
Phase current	1.0A
Resistance	4.6Ω±0.48
Inductance	18.6mH REF
Insulation	100m Ω MIN
Max. temperature	80°C MAX
Insulation grade	B



## Cross Contamination Free System



### **01** Perfusion steps

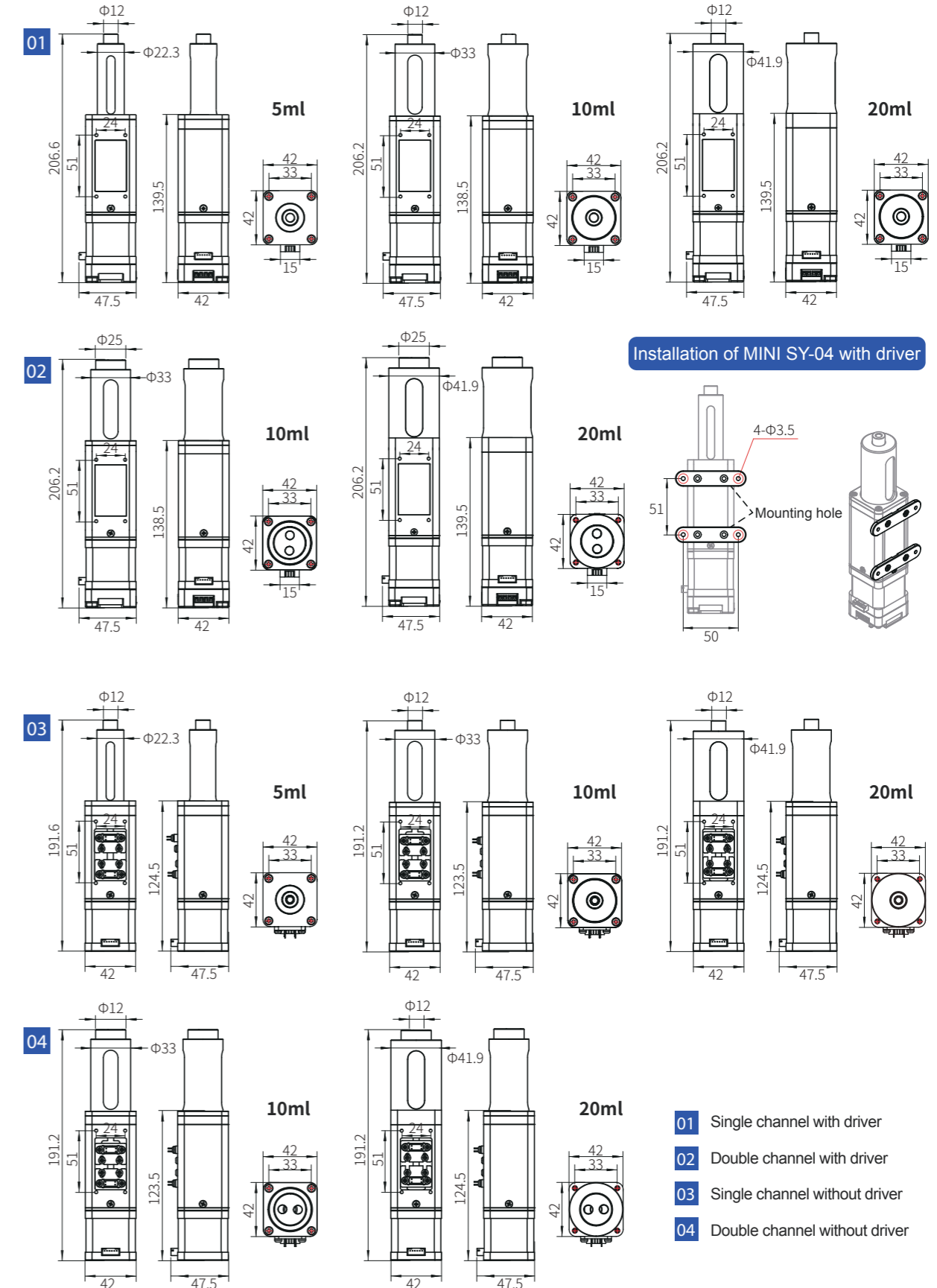
1. Reset selector valve, open two way solenoid valve, syringe pump suction water (suction volume must be little more than liquid in the storage loop)
2. After water suction, close two way solenoid valve, selector valve switch to port 2, syringe pump reset and empty
3. Selector valve switch to port 3, reagent 1 was suctioned into storage loop through selector valve (suction volume depends on tubing length and inner diameter)
4. Selector valve switch to port 2, syringe pump reset and empty
5. Selector valve switch to port 10 (air port), syringe pump suction 1ml air and switch to port 3 to discharge 100 $\mu$ L air, then switch to port 2 to empty

### **01** Sampling steps

1. Reset selector valve, open two way solenoid valve, syringe pump suction water
2. After water suction, close two way solenoid valve, selector valve switch to port 2, syringe pump reset and empty
3. Selector valve switch to port 3, syringe pump suction certain volume of reagent (suction volume more than target volume to ensure the accuracy)
4. Selector valve switch to port 2, syringe pump discharge 200 $\mu$ L, after 2s delayed, selector valve switch to port 1, syringe pump discharge target volume, then discharge and empty the rest liquid to port 2.
5. Selector valve switch to port 10, syringe pump suction 1ml air and discharge 0.5ml air to port 1, discharge 100 $\mu$ L air to port 3, then switch to port 2 to empty

- 02**
1. To make syringe pump suction liquid, power on solenoid valve, NO (normally open) and common port of solenoid valve connected, pump suction liquid from box A into syringe pump;
  2. To make syringe pump discharge liquid, power on solenoid valve, NO (normally open) closed, NC (normally close) opened and connected with common port, pump discharge liquid from syringe into box B.

## Dimension (unit: mm)



# Smart SY-01B Syringe Pump

## 注射泵



- Smart SY-01B syringe pump is the newest member in the series of micro-syringe pumps self-developed by Runze Fluid, which can handling fluids from microliters to milliliters with extraordinary accuracy and precision.
- Accommodates distribution valves and syringes in a variety of configurations. Transfers liquid in high precision which can meet most users' requirements.
- Can be used in series with multiple pumps.
- The excellent performance of Smart SY-01B syringe pump provides guarantee on the R & D and application for users.

ZSB-SY01B - 30 - M01 - 3

Model No.      Stroke 30mm      Valve model      Control 12000 steps

Valve Model			
M01	M02	M03	M04
M05	M06	M10	M12

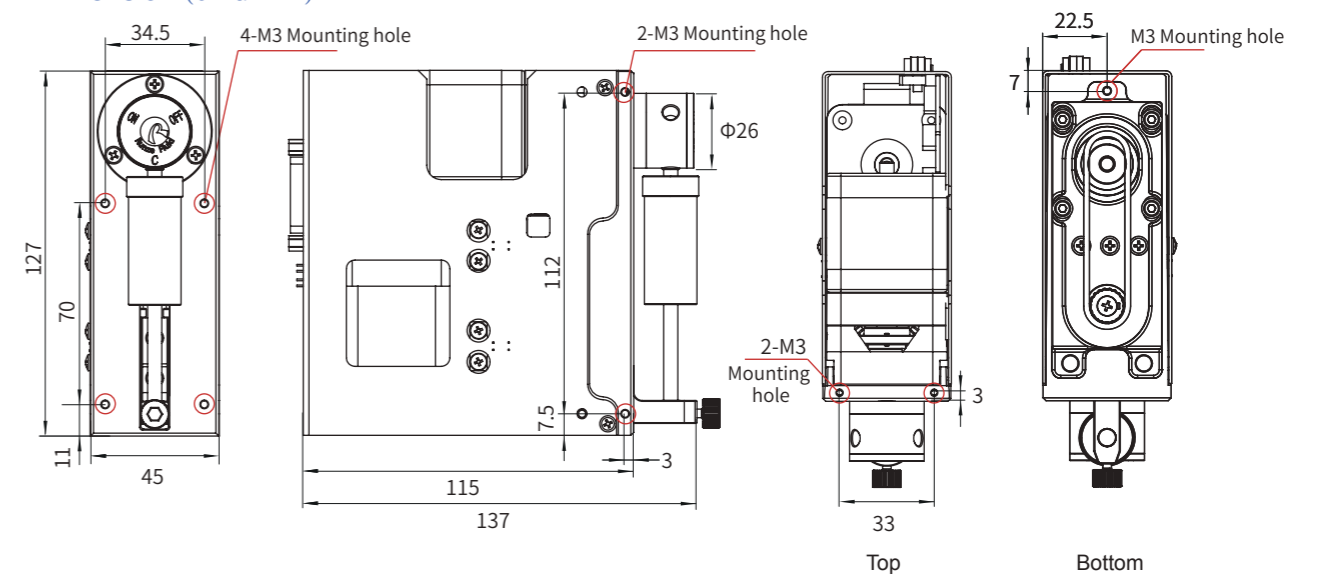
### Technical Parameter

Class	Items	Parameter	Items	Parameter
Plunger	Rated Stroke	30mm	Resolution	12000 steps standard mode 96000 steps micro-step mode
	ILS Syringe	25ul, 50ul, 125ul, 250ul, 500ul, 1.25ml, 2.5ml, 5ml		
Syringe	Accuracy	≤1%@100% stroke	Precision (Repeatability)	0.3%-0.5%@100% stroke
	Max RPM	450rpm	Linear Speed	0.0067mm/s-15mm/s
	Running time (per rated stroke)	2s-4500s	Control Resolution/ Minimum Injection Accuracy	0.005mm (per step)
Valve Model(available)	M01、 M02、 M03、 M04、 M05、 M06、 M10、 M12			
Power Supply	Voltage	Rated voltage:	Current	3.0A
		24V DC±5%		
Communication Interface	Type	RS232/RS485 9600/38400 (RS232/RS485)		
Communication Address	Up to 15 individual addresses can be provided		Communication	Data terminal
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory			
Signal Input	2-channel TTL signal input			
Signal Output	3-channel TTL signal output & one channel MOS output			
Temperature	Operating temperature	5-55 °C	Storage Temperature	15-65 °C
Max. Pressure Rating	0.7Mpa			
Wetted Material	Borosilicate glass, PCTFE valve head, Sapphire rotor/stator, PTFE piston			
Transmission Structure	Screw drive			
Dimension(L*W*H)	142.7*127*45mm			
Net Weight	1.5kg			

### Valve Model (C connected with syringe)

Valve Model: M01 Fluid Logic: Y Flow Path (C-1/1-2/C-2 interlinked)	
Valve Model: M02 Fluid Logic: T Flow Path (C-1-2/C-1/1-2/C-2 interlinked)	
Valve Model: M03 Fluid Logic: Distribution Flow Path (C-1/C-2/C-3 interlinked)	
Valve Model: M04 Fluid Logic: Radio Flow Path (C-1/1-2/2-3/C-3 interlinked)	
Valve Model: M05 Fluid Logic: Bi-pass Flow Path (C-1/2-3 interlinked, C-3/1-2 interlinked)	
Valve Model: M06 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 6)	
Valve Model: M10 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 9)	
Valve Model: M12 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 12)	

### Dimension (unit: mm)



# SY-03B Syringe Pump

注射泵



- SY-03B is a micro-syringe pump with extraordinary precision in the series of high-end products developed by Runze Fluid.
- Accommodates distribution valves and syringes in a variety of configurations. Transfers liquid in high precision which can meet most users' requirements.
- Can be used in series with multiple pumps.
- Fully programmable pump module with open framework, which handling fluids from microliters to milliliters with extraordinary accuracy and precision.
- With functions in automatic pipetting, dilution and dispensing.

ZSB-SY03 - 60 - M01 - 3

Model No.      Stroke 60mm      Valve model      Control 6000 half-steps

Valve Model									
M01	M02	M03	M04	M05	M06	M07	M08	M09	M10

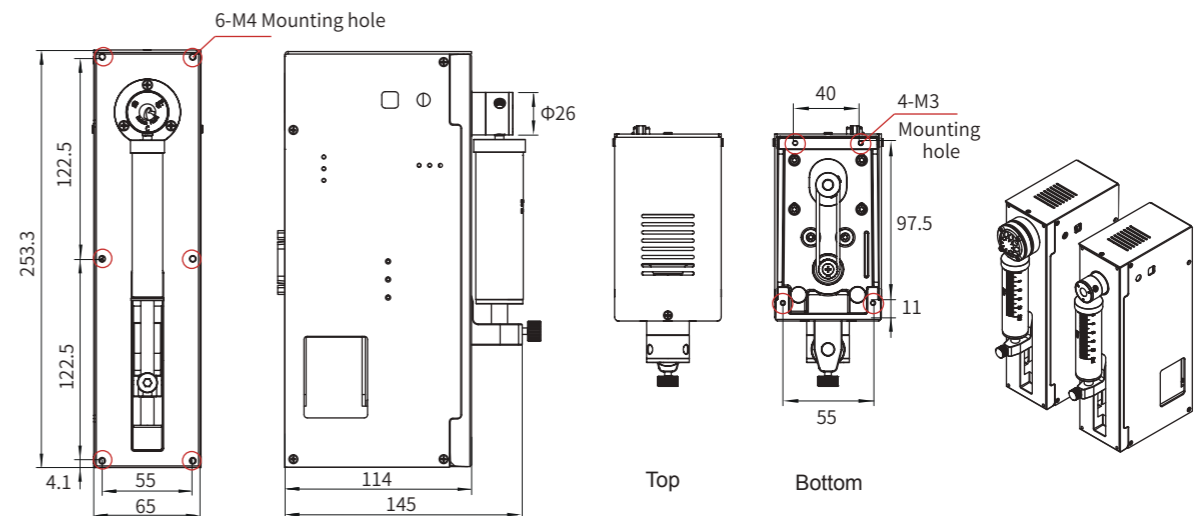
## Technical Parameter

Class	Items	Parameter	Items	Parameter
Plunger	Rated Stroke	60mm	Resolution	6000 steps standard mode 48000 steps micro-step mode
	ILS Syringe	25ul, 50ul, 100ul, 250ul, 500ul, 1ml, 2.5ml, 5ml, 10ml, 25ml		
Syringe	Accuracy	≤1%@100% stroke	Precision (Repeatability)	0.3%-0.5%@100% stroke
	RPM Range	0.1rpm-600rpm	Linear Speed	0.01mm/s-60mm/s
	Running time (per rated stroke)	1s-6000s (media: water)	Control Resolution / Minimum Injection Accuracy	0.01mm (1 step)
Valve Model(available)	M01、M02、M03、M04、M05、M06、M07、M8、M9、M10			
Power Supply	Voltage	Rated voltage:	Current	3.0A
		24V DC±5%		
Communication Interface	Type	RS232/RS485 9600/38400 (RS232/RS485)		
Communication Address	Up to 15 individual addresses can be provided	Communication	Data terminal	
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory			
Signal Input	2-channel TTL signal input			
Signal Output	3-channel TTL signal output & one channel MOS output			
Temperature	Operating temperature	5-55 °C	Storage Temperature	15-65 °C
Max. Pressure Rating	0.7Mpa			
Wetted Material	Borosilicate glass, PCTFE valve head, Sapphire rotor/stator			
Transmission Structure	Screw drive			
Dimension(L*W*H)	150*65*254mm			
Net weight	2.2kg			

## Valve Model (C connected with syringe)

Valve Model: M01 Fluid Logic: Y Flow Path (C-1/1-2/C-2 interlinked)	
Valve Model: M02 Fluid Logic: T Flow Path (C-1-2/C-1/1-2/C-2 interlinked)	
Valve Model: M03 Fluid Logic: Distribution Flow Path (C-1/C-2/C-3 interlinked)	
Valve Model: M04 Fluid Logic: Radio Flow Path (C-1/1-2/2-3/C-3 interlinked)	
Valve Model: M05 Fluid Logic: Bi-pass Flow Path (C-1/2-3 interlinked, C-3/1-2 interlinked)	
Valve Model: M06 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 6)	
Valve Model: M07 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 8)	
Valve Model: M08 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 10)	
Valve Model: M09 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 15)	
Valve Model: M10 Fluid Logic: Distribution Flow Path (C selectively link to port 1 - 9)	

## Dimension (unit: mm)



# SY-03B Syringe Pump in DK Series

## 注射泵



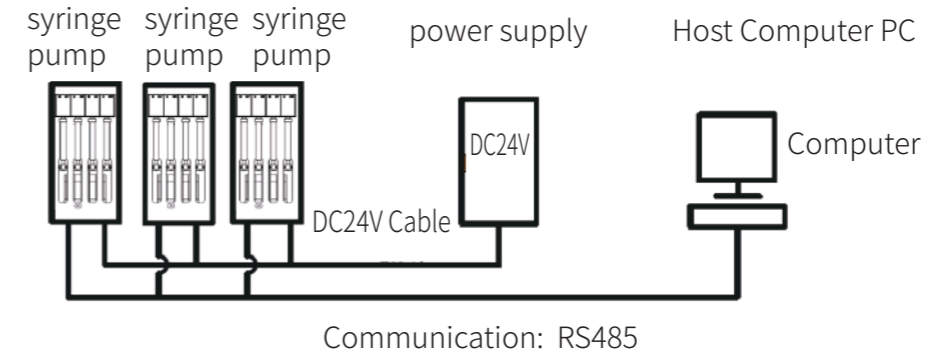
- SY-03B Dk series product is a kind of micro-syringe pump with multiple syringes working in parallel in high precision developed by Runze Fluid.
- Use a stepper motor to drive the syringe and the valve to aspirate and dispense quantitative liquid.
- Fully programmable pump module with open framework, which handling fluids from microliters to milliliters with extraordinary accuracy and precision. With functions in automatic pipetting, dilution and dispensing.
- Controlled by an external computer or microprocessor.

### Technical Parameter

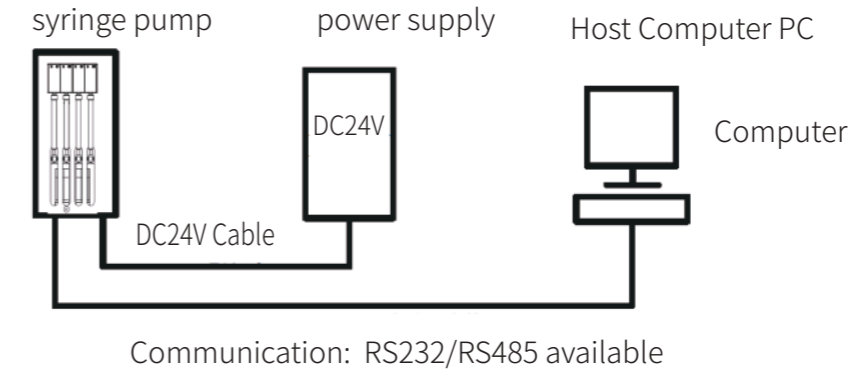
Class	Items	Parameter	Items	Parameter
Plunger	Rated Stroke	60mm	Resolution	6000 steps standard mode 48000 steps micro-step mode
	ILS Syringe	25ul, 50ul, 100ul, 250ul, 500ul, 1ml, 1.25ml, 2.5ml, 5ml		
Syringe	Accuracy	≤1%@100% stroke	Precision (Repeatability)	0.3%-0.5%@100% stroke
	Speed Range	0.1rpm-333rpm	Linear Speed	0.01mm/s-33.33mm/s
	Running time (per rated stroke)	1.8s-6000s (media: water)	Control Resolution/ Minimum Injection Accuracy	0.01mm (per step)
	Valve Type	3-way solenoid valve	Valve thread	1/4-28UNF
Solenoid valve	Material of Diaphragm	FKM	Material of Valve body	PPS, PEEK
Power Supply	Voltage	Rated voltage: 24V DC±5%	Current	3.0A
Communication Interface	RS232/RS485 9600/38400 (RS232/RS485)			
Communication Address	Up to 15 individual addresses can be provided	Communication	Data terminal	
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory			
Signal Input	2-channel TTL signal input			
Signal Output	3-channel TTL signal output & one channel MOS output			
Temperature	Operating temperature	5-55 °C	Storage Temperature	15-65 °C
Max. Pressure Rating	0.2Mpa			
Wetted Material	Borosilicate glass, PCTFE valve head, Sapphire rotor/stator			
Transmission Structure	Screw drive			

### Wiring Diagram

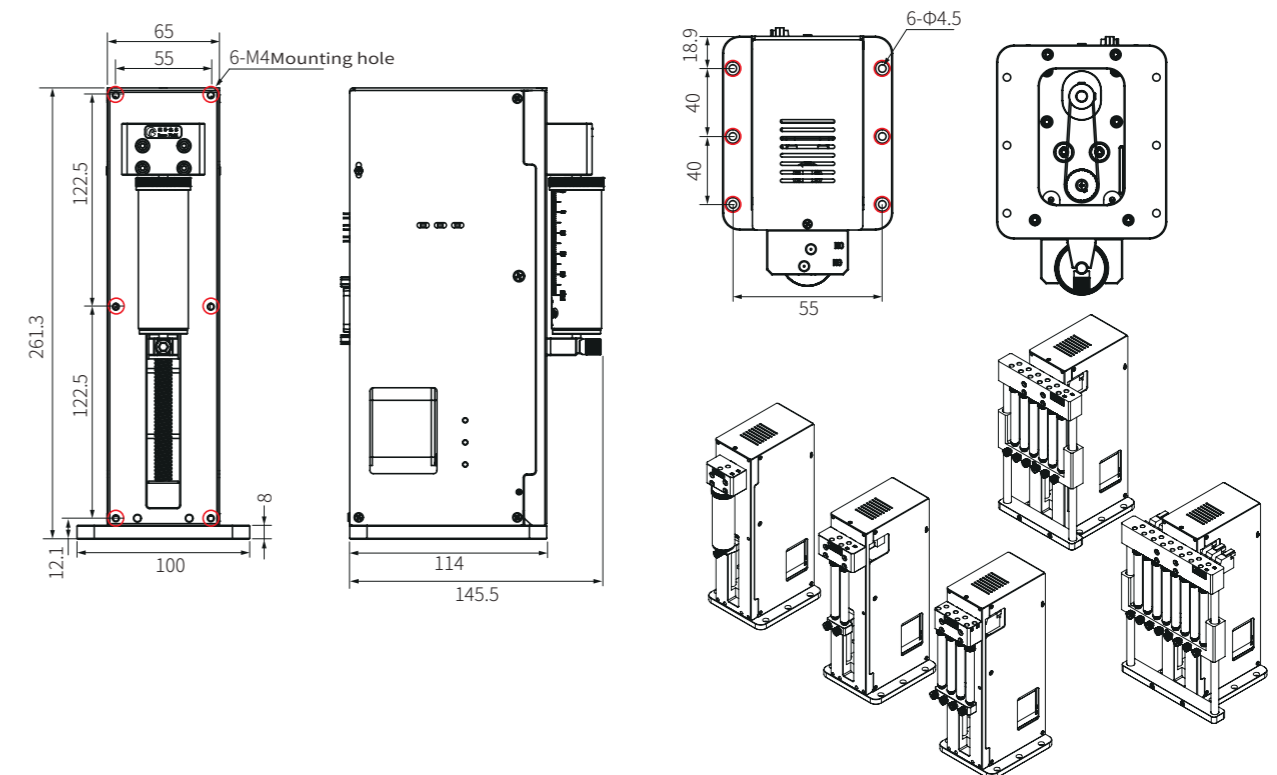
#### Multiple syringe pumps controlled in parallel



#### Single controlled



### Dimension (unit: mm)



# SY-08 Vertical Syringe Pump

## 立式注射泵



- Small compact size, easy mounting, space-saving, long service life
- Industrial Syringe Pump with high precision in micro-liquid transferring and high performance.
- Wetted material borosilicate glass and PTFE, corrosion resistance, high temperature resistance, biocompatible and suitable for a variety of special media.
- Widely used in a variety of analysis equipment such as environmental analysis instruments, medical analysis instruments, non-standard sampling facilities in high-precision, etc.
- Widely used in a variety of analysis equipment such as environmental analysis instruments, medical analysis instruments, non-standard sampling facilities in high-precision, etc.

ZSB08-LS - 0.9 - 1 - 5 - 1 - Q

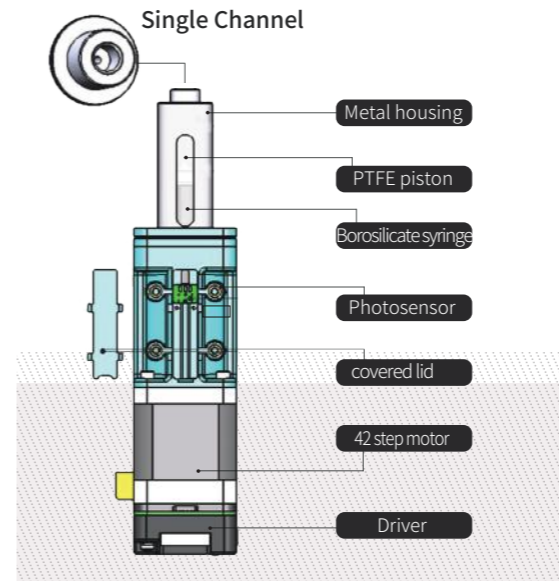
Model No.      0.9° Step angle    Screw Lead    Volume    Single channel    With Driver

5	Volume 5ml
12.5	Volume 12.5ml
25	Volume 25ml

### Technical Parameter

Accuracy	≤1%@100% (rated stroke)		
Precision (Repeatability)	0.3%-0.7%@100% (rated stroke)		
Service life	3 million times no leakage (media: water; 1 rated stroke = one time)		
Volume	5ml	12.5ml	25ml
Rated Stroke (control steps)	30mm(12000steps)	30mm(12000steps)	30mm(12000steps)
Maximum speed	800rpm	800rpm	700rpm
Linear speed	0.017-13.33mm/s	0.017-13.33mm/s	0.017-11.67mm/s
Running time (per rated stroke)	2.25-1765s	2.25-1765s	2.57-1765s
Resolution	0.0025mm/0.416ul	0.0025mm/1.042ul	0.0025mm/2.083ul
Syringe ID	14.55mm	23.03mm	32.57mm
Actuator	Trapezoidal screw (Lead 1mm)		
Max. piston drive	≥100N		
Wetted Material	Borosilicate glass, PCTFE valve head, PTFE piston		
Max. Pressure	Positive: 0-0.8Mpa, Negative:0-0.06Mpa, (retention time based on test)		
Channel	Single channel		
Connection	1/4-28UNF		
Baud rate	RS232/RS485: 9600bps / 19200bps / 38400bps / 57600bps / 115200bps CAN: 100Kbps/200Kbps/500Kbps/1Mbps		
Address & Parameter setting	Via Communication		
Power supply	DC24V/3A		
Operating temperature	5℃~55℃		
Operating humidity	≤ 80% relative humidity, non-condensing		
Dimension (L*W*H)	42*42*190mm	42*42*199m	42*42*199mm
Net Weight	0.56KG	0.62KG	0.66KG

### Product Structure

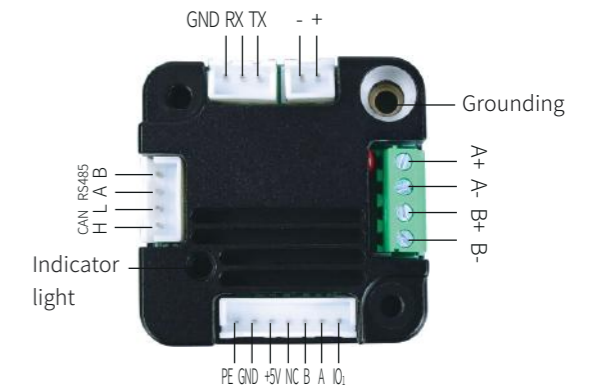


### Product Function

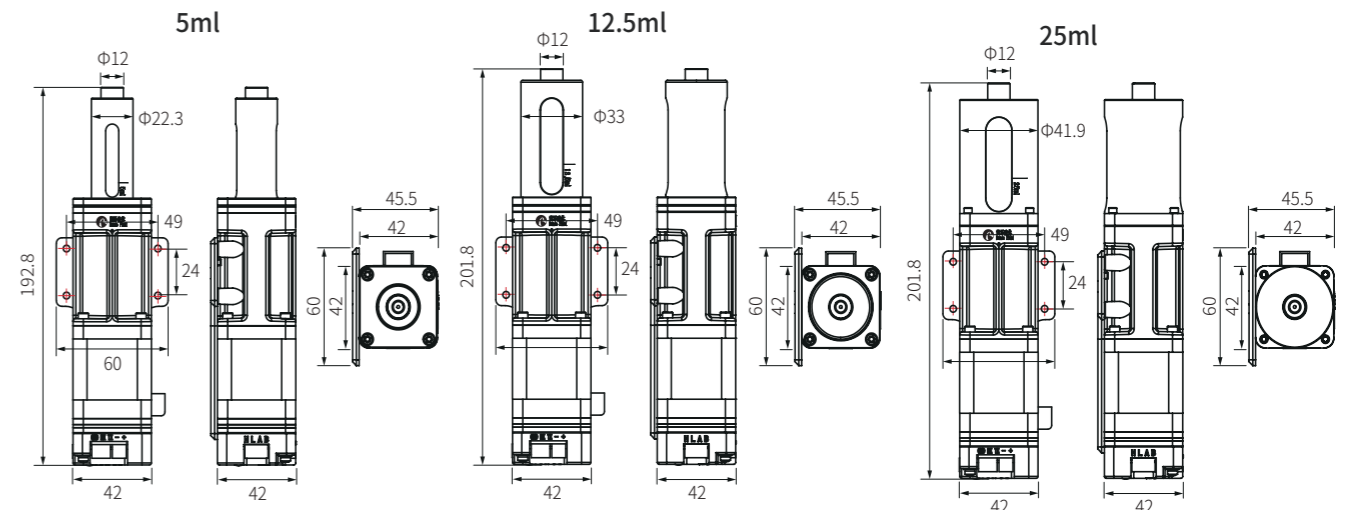
Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	1rpm/min-800rpm/min settable via serial port (air and liquid maybe different)
Subdivision setting	subdivision 2-32 are settable
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate, etc.
Version query	Query current firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin/home position
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status

### Driver Port

Port	Description	Port	Function
+	DC24V Positive	A+/A-	Phase A wiring
-	DC24V Negative	B+/B-	Phase B wiring
TX	RS232 Data Input	IO1	IO1 Optocoupler signal
RX	RS232 Data Output	A	Encoder Phase A
GND	RS232 GND	B	Encoder Phase B
H	CANH	NC	Temporary is not enabled
L	CANL	+5V	Power positive
A	RS485A	GND	GND
B	RS485B	PE	Grounding



### Dimension (unit: mm)



# SY-09 Vertical Syringe Pump

立式注射泵



- Small compact size, easy mounting, space-saving, long service life
- An industrial Syringe Pump with high precision & high performance in micro-liquid transferring self-developed by Runze Fluid.
- Make step motor move in clockwise or counterclockwise by receiving instructions from the host computer. The circular motion is converted into linear motion by the trapezoidal screw to make the piston move up and down which realizes the function of aspirating and dispensing the liquid.
- Widely used in liquid transferring system with high-precision and high-stability sampling requirements, such as medical analysis equipment, chromatographic analyzers, food and beverages detection and analysis system, water quality on-line analyzer, petroleum detection equipment and biopharmaceutical extraction devices

ZSB-LS - 1.8 - 1 - 3 - M - Q

Model No. 1.8° Step angle Screw Lead Volume With code disk With Driver

3	Volume 3ml
8	Volume 8ml

## Technical Parameter

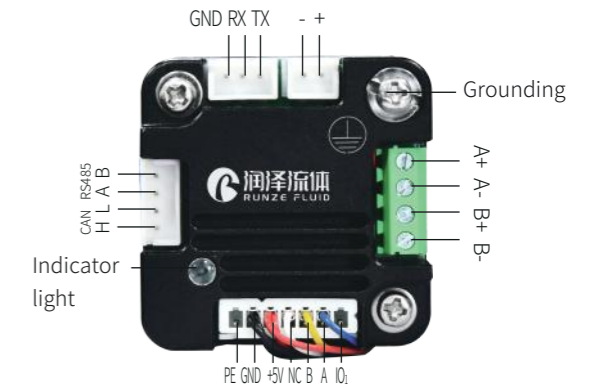
Accuracy	≤1%@100% (rated stroke)	
Precision (Repeatability)	0.3%-0.7%@100% (rated stroke)	
Service life	3 million times no leakage (media: water; 1 rated stroke = one time)	
Volume	3ml	8ml
Rated Stroke (control steps)	18mm(3600steps)	19.2mm (3840steps)
Maximum speed	800rpm	700rpm
Linear speed	0.017-13.33mm/s	0.017-11.67mm/s
Running time (per rated stroke)	1.35-1059s	1.64-1129s
Resolution	0.005mm/0.833ul	0.005mm/2.083ul
Syringe ID	14.55mm	23.03mm
Actuator	Trapezoidal screw (Lead 1mm)	
Wetted Material	Borosilicate glass, PCTFE valve head, PTFE piston	
Max. Pressure	Positive: 0-0.8Mpa, Negative:0-0.06Mpa, (retention time based on test)	
Channel	Single channel	
Baud rate	RS232/RS485: 9600bps / 19200bps / 38400bps / 57600bps / 115200bps CAN: 100Kbps/200Kbps/500Kbps/1Mbps	
Connection	1/4-28UNF	
Address & Parameter setting	Via Communication	
Rated power	15W	
Power supply	DC24V/3A	
Operating temperature	5°C~55°C	
Operating humidity	≤ 80% relative humidity, non-condensing	
Dimension (L*W*H)	51*41.5*155.2mm	51*41.5*157.2
Net Weight	0.56KG	0.62KG

## Product Structure

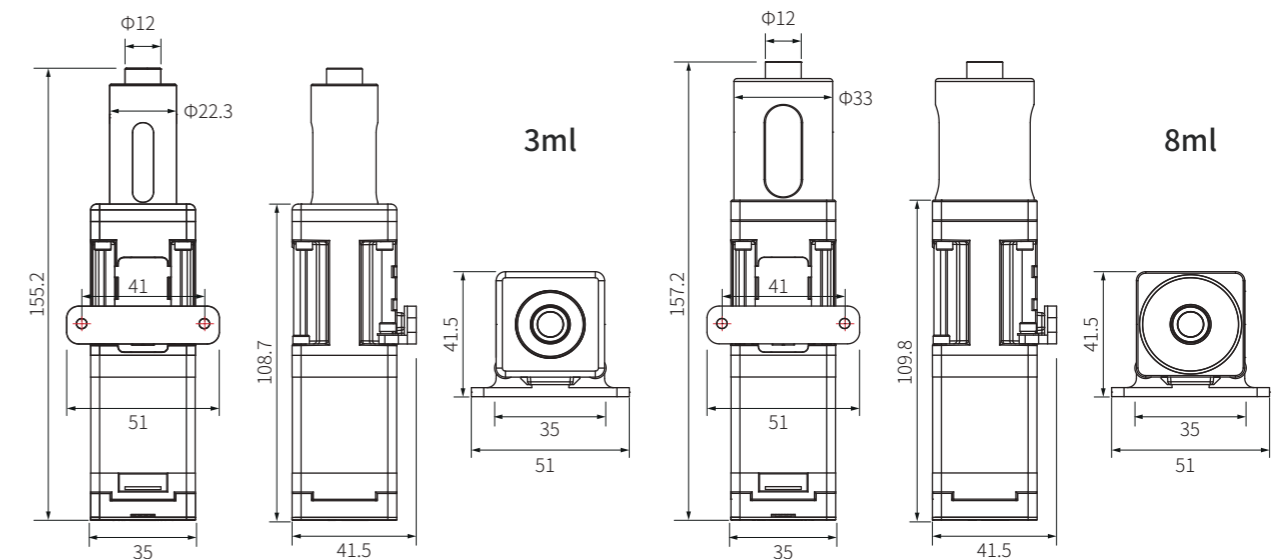
Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	1rpm/min-800rpm/min settable via serial port (air and liquid maybe different)
Subdivision setting	Subdivisions 2-32 are settable
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate, etc.
Version query	Query current firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin/home position
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status

## Driver Port

Port	Description	Port	Function
+	DC24V Positive	A+/A-	Phase A wiring
-	DC24V Negative	B+/B-	Phase B wiring
TX	RS232 Data Input	IO1	IO1 Optocoupler signal
RX	RS232 Data Output	A	Encoder Phase A
GND	RS232 GND	B	Encoder Phase B
H	CANH	NC	Temporary is not enabled
L	CANL	+5V	Power positive
A	RS485A	GND	GND
B	RS485B	PE	Grounding



## Dimension (unit: mm)



# Rpm-01 Syringe Pump

## 往复式注射泵



- High precision continuous liquid transfer instead of peristaltic pump
- Small compact size, easy mounting, space-saving
- High Repeatability, long service life, maintenance free
- Wetted material borosilicate glass and PTFE, corrosion resistance, biocompatible, non-contamination
- NMB stepper motor, long-life, high accuracy, reliability and stability
- RS232/RS485/CAN communication driver optional

**RPM-01-D-42-1-W01**

Model No.    Structure    Step motor    Volume    Driver

①	D single side S double side	②	42 42 step motor 57 57 step motor	③	1 1ml 2 2ml 3 3ml	④	W01 without driver Y02 with driver
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### Technical Parameter

Rated volume	1ml	2ml	3ml
Resolution	1ml	2ml	3ml
Accuracy	±1%@100% stroke		
Precision (Repeatability)	0.3%~0.7%(100% stroke)		
Pressure rating	Max. 0.3Mpa		
Service life	3 million times no leakage (media: water; 1 rated stroke=one time)		
Max. speed	120rpm 【single side】	150rpm 【double side】	
Min. speed	1rpm		
Flow range	1 - 360ml/min 【single side】	2 - 900ml/min 【double side】	
Actuator	Eccenter		
Wetted material	Borosilicate glass, PTFE piston/outlet		
Connection	1/4-28UNF		
Communication	RS485/RS232/CAN		
Power supply	DC24V/1.5A		
Operating temperature	5°C-55°C		
Operating humidity	<80% relative humidity, non-condensing		
Dimension (L*W*H)	98.3*42*116.4mm 【single side】	181.6*56*125.08mm 【double side】	
Net weight	0.8kg 【single side】	2.158kg 【double side】	

#### Rigid Tube Connection

Threaded check valve + Flangeless fittings



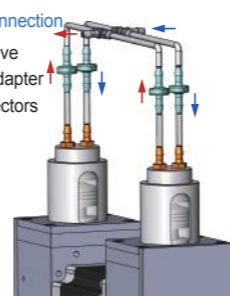
#### Flexible Tube Connection

Barbed check valve + Male-to-barb adapter



#### Flexible Tube Connection

Barbed check valve + Male-to-barb adapter + Barbed T connectors

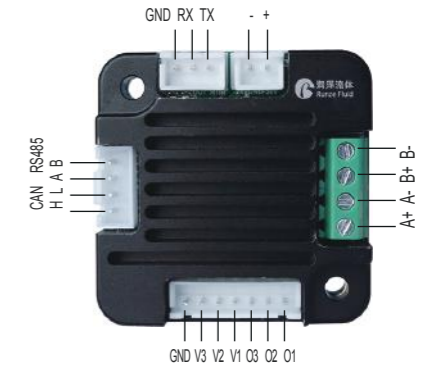


### Motor Parameter

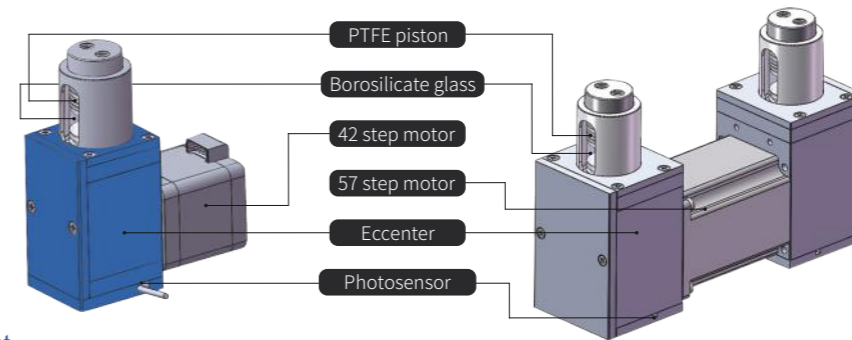
42 step motor				57 step motor			
Max. power	9.2W	Resistance	3.8Ω±0.38	Max. power	18.8W	Resistance	1.7Ω±0.17
Step angle	1.8°	Inductance	5.2mH REF	Step angle	1.8°	Inductance	7mH REF
Phase	2	Insulation	100m Ω MIN	Phase	2	Insulation	100m Ω MIN
Phase voltage	4.2V	Max. Temp	80°C MAX	Phase voltage	4.0V	Max. Temp	80°C MAX
Phase current	1.1A	Insulation grade	B	Phase current	2.35A	Insulation grade	B

### Driver Port (optional)

Port	Description	Port	Description
H	CANH	B+/B-	Phase B wiring
L	CANL	A+/A-	Phase A wiring
A	RS485 A	O1	Photosensor wiring port
B	RS485 B	O2	
GND	GND	O3	
RX	RS232 data output	V1	Photosensor wiring port
TX	RS232 data input	V2	
-	DC24V negative	V3	
+	DC24V positive	GND	



### Product Structure



### Component

RPM-01 eccentric syringe pump was made of PTFE piston, borosilicate syringe, 42/57 step motor, eccentric inset, crank web, pushrod, Panasonic photosensor, other mechanical parts.

### Classification

1. Rpm-01-D 1ml 2ml 3ml syringe pump suction and dispense 1ml 2ml 3ml when motor runs 1 circle (360°) while Rpm-01-S 1ml 2ml 3ml suction and dispense 2ml, 4ml, 6ml when motor runs 1 circle (360°)
2. Single side Rpm-01 made of one 42 step motor and 1 pump structure which needs 2pcs check valves (inlet only and outlet only) to realize liquid suction and dispense  
Double side Rpm-01 made of one 57 step motor and 2 pump structures which needs 4pcs check valves (inlet only and outlet only) to realize double volume liquid dispensing than single side Rpm-01 syringe pump

**Note:** Do any adjustment under low working speed to protect the syringe from damage.

Inset Panasonic photosensor helps to protect the syringe pump from collision and anti external interference.

### Dimension (unit: mm)

